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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,997	11/14/2001	Sudhir Aggarwal	US018184	6069

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Corporate Patent Counsel;
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EXAMINER	
NGUYEN, KHAI MINH	
ART UNIT	**PAPER NUMBER**
2684	

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/003,997	AGGARWAL ET AL.	
	Examiner	Art Unit	
	Khai M Nguyen	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/14/2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,2,4-8,10-15,19 and 20* is/are rejected.

7)☒ Claim(s) *3,9 and 16-18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/14/01, 4/2/03*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-8, 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Indseth (U.S. Pub-2002/0049044).

Regarding claim 1, Indseth teaches an impedance matching circuit for a multi-band radio frequency device (fig.1-2, paragraph 0052-0054), said impedance matching circuit comprising:

an input circuit for receiving a multi-band radio frequency signal (paragraph 0055);

a frequency selective network comprising a first frequency selective sub-network that is configured to selectively output a first radio frequency signal comprised in a first sub-band of said multi-band radio frequency signal (fig.1-2, paragraph 0053), and a second frequency selective sub-network that is configured to selectively output a second radio frequency signal comprised in a second sub-band of said multi-band radio

frequency signal (fig.1-2, paragraph 0053), said first and second frequency selective sub-networks being switch-less networks (fig.1-2).

Regarding claim 2, Indseth teaches an impedance matching network as claimed in claim 1, wherein said first frequency selective sub-network comprises a common reactive element of a first type (paragraph 0055), and a first reactive element of a second type (paragraph 0055), and said second frequency selective sub-network comprises said common reactive element (paragraph 0055), and a second reactive element of said second type (paragraph 0055), said first and second reactive elements being arranged in series (paragraph 0058, 0066), said first radio frequency signal being outputted at a first node of said series arrangement and said second radio frequency signal being outputted at a second node of said series arrangement (fig.10, element rf, Bi, Bq, paragraph 0068).

Regarding claim 4, Indseth teaches an impedance matching network as claimed in claim 1, wherein said first frequency selective sub-network comprises a series arrangement of common reactive elements of a first type (paragraph 0058), and a first reactive element of a second type (paragraph 0055), and said second frequency selective sub-network comprises said series arrangement of common reactive elements (paragraph 0058), and a second reactive element of said second type (paragraph 0055), said first reactive element being coupled between a first node of said series

arrangement and a first output node for outputting said first radio frequency signal (fig.10, element Bi, paragraph 0068), and said second reactive element being coupled between a second node of said series arrangement and a second output node for outputting said second radio frequency signal (fig.10, element Bq, paragraph 0068).

Regarding claim 5, Indseth teaches an impedance matching network as claimed in claim 4, wherein said frequency selective network comprises a third frequency selective sub-network that is configured to selectively output a third radio frequency signal comprised in a third sub-band of said multi-band radio frequency signal (paragraph 0031-0032).

Regarding claim 6, Indseth teaches an impedance matching network as claimed in claim 1, wherein the input circuit is an adder circuit (fig.1-2, element Combiner, paragraph 0090).

Regarding claim 7, Indseth teaches an impedance matching network as claimed in claim 6, wherein the adder circuit is comprised of connected nodes for receiving signals from first and second mixer circuits (fig.1-2, elements Li, Lq, paragraph 0090).

Regarding claim 8, Indseth teaches an impedance matching network as claimed in claim 1, wherein the input circuit is comprised of at least one input terminal for receiving said multi-band radio frequency signal (paragraph 0031).

Regarding claim 10, Indseth teaches a multi-band radio frequency device with an impedance matching circuit (fig.1-2, paragraph 0052-0054), said impedance matching network comprising:

an input circuit for receiving a multi-band radio frequency signal (paragraph 0055);

a frequency selective network comprising a first frequency selective sub-network that is configured to selectively output a first radio frequency signal comprised in a first sub-band of said multi-band radio frequency signal (fig.1-2, paragraph 0053), and a second frequency selective sub-network that is configured to selectively output a second radio frequency signal comprised in a second sub-band of said multi-band radio frequency signal (fig.1-2, paragraph 0053), said first and second frequency selective sub-networks being switch-less networks (fig.1-2, fig.10).

Regarding claim 11, Indseth teaches a multi-band radio frequency device as claimed in claim 10, wherein said first frequency selective sub-network comprises a common reactive element of a first type (paragraph 0055), and a first reactive element

of a second type (paragraph 0055), and said second frequency selective sub-network comprises said common reactive element (paragraph 0055), and a second reactive element of said second type (paragraph 0055), said first and second reactive elements being arranged in series (paragraph 0058, 0066), said first radio frequency signal being outputted at a first node of said series arrangement and said second radio frequency signal being outputted at a second node of said series arrangement (fig.10, elements rf, Bi, Bq, paragraph 0068).

Regarding claim 12, Indseth teaches a multi-band radio frequency device as claimed in claim 10, wherein said first frequency selective sub-network comprises a series arrangement of common reactive elements of a first type (paragraph 0058), and a first reactive element of a second type (paragraph 0055), and said second frequency selective sub-network comprises said series arrangement of common reactive elements (paragraph 0058), and a second reactive element of said second type (paragraph 0055), said first reactive element being coupled between a first node of said series arrangement and a first output node for outputting said first radio frequency signal (fig.10, element Bi, paragraph 0068), and said second reactive element being coupled between a second node of said series arrangement and a second output node for outputting said second radio frequency signal (fig.10, element Bq, paragraph 0068).

Regarding claim 13, Indseth teaches a multi-band radio frequency device as claimed in claim 10, further comprising first and second mixer circuits (fig.10, elements Li, Lq, paragraph 0103), the input circuit comprising connected nodes for receiving signals from first and second mixer circuits (fig.10, elements Bi, Bq, paragraph 0103).

Regarding claim 14, Indseth teaches a multi-band radio frequency device as claimed in claim 13, further comprising a first amplifier circuit for amplifying said first radio frequency signal (paragraph 0063), and a second amplifier circuit for amplifying said second radio frequency signal (paragraph 0063).

Regarding claim 15, Indseth teaches a multi-band radio frequency device as claimed in claim 14, wherein said impedance matching circuit, said first and second mixers (paragraph 0063), and said first and second amplifier circuits are comprised in a transmit branch of said multi-band radio frequency device (fig.10, paragraph 0063-0066).

Regarding claim 19, Indseth teaches an impedance matching method for a multi-band radio frequency device, said impedance matching method comprising:

selectively outputting a first radio frequency signal comprised in a first sub-band of a multi-band radio frequency signal (fig.10, paragraph 0055, 0059-0067);

selectively outputting a second radio frequency signal comprised in a second sub-band of said multi-band radio frequency signal (fig.10, paragraph 0055, 0059-0067), said first and second selectively outputting being done without applying switching in a signal path (fig.1-2, fig.10).

Regarding claim 20, Indseth teaches an impedance matching method as claimed in claim 19, further comprising selectively outputting a third radio frequency signal comprised in a third sub-band of a multi-band radio frequency signal (paragraph 0031-0032), said third selectively outputting being done without applying switching in the signal path (fig.1-2, fig.10).

Allowable Subject Matter

Claims 3, 9, 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khai M Nguyen whose telephone number is 703.305.3906. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on 703.308.7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Khai Nguyen
Au:2684

NICK CORSARO
PRIMARY EXAMINER

9/28/2004